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By- Noel, Elizabeth S.; Helmke, Guy M.

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The use of television in California for educational purposes, particularly for classroom instruction, has grown rapidly in the 14 years since the first successful ETV station (KQED, San Francisco) began broadcasting. Both state and federal legislation have provided impetus for instructional television, which now reaches more than a third of California's public school population. Fourteen stations, commercial and non-commercial, transmit over 200 programs for classroom use. Approximately 109 schools, primarily elementary, utilize closed-circuit television, including Instructional Television Fixed Service (ITFS), a sophisticated system capable of linking several schools. Portable video tape recorders are also being used in the closed-circuit systems. Local taxation is the main source of funds for ITV, although there is reimbursement from the state on a matching basis. Assistance in paying capital costs is available under a series of federal education acts begun in 1958. The most significant development in ITV organizational structure has been the regional advisory group with its core of curriculum committees. Within the State Department of Education, responsibility for ITV rests with the Bureau of Audio-Visual and School Library Education. Along with the Department, school personnel share responsibility for further developing instructional television. (PM)

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INSTRUCTIONAL TELEVISION IN CALIFORNIA
A Status Report

Prepared for the
Bureau of Audio-Visual and School Library Education
Division of Instruction

By

Mrs. Elizabeth S. Noel
Consultant in Instructional Television

and

Guy M. Helmke
Consultant in Audio-Visual Education

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PREFACE

The rapid growth of instructional television in California is impressive. Interest in its use and concern for its orderly development have been expressed by school people at all levels of education. The Bureau of Audio-Visual and School Library Education continually receives requests for up-to-date information on the extent of statewide coverage and classroom use, patterns of organization for program planning and design, television equipment and facilities, and responsibilities of the State Department of Education relative to the development of instructional television.

To meet the need for up-to-date information and to provide a brief account of statewide ITV activities, this status report has been prepared. A number of persons throughout the State have provided or checked information included in this publication and their assistance is sincerely appreciated. However, major responsibility for preparation of this report was carried by Elizabeth Noel and Guy Helmke of the Bureau of Audio-Visual and School Library Education.

It is hoped that this bulletin will be helpful to school people who are currently involved in instructional television and to those educators who are interested in exploring television for instructional use in the future.

Donald E. Kitch
Acting Chief
Division of Instruction

Harry J. Skelly, Chief
Bureau of Audio-Visual and
School Library Education

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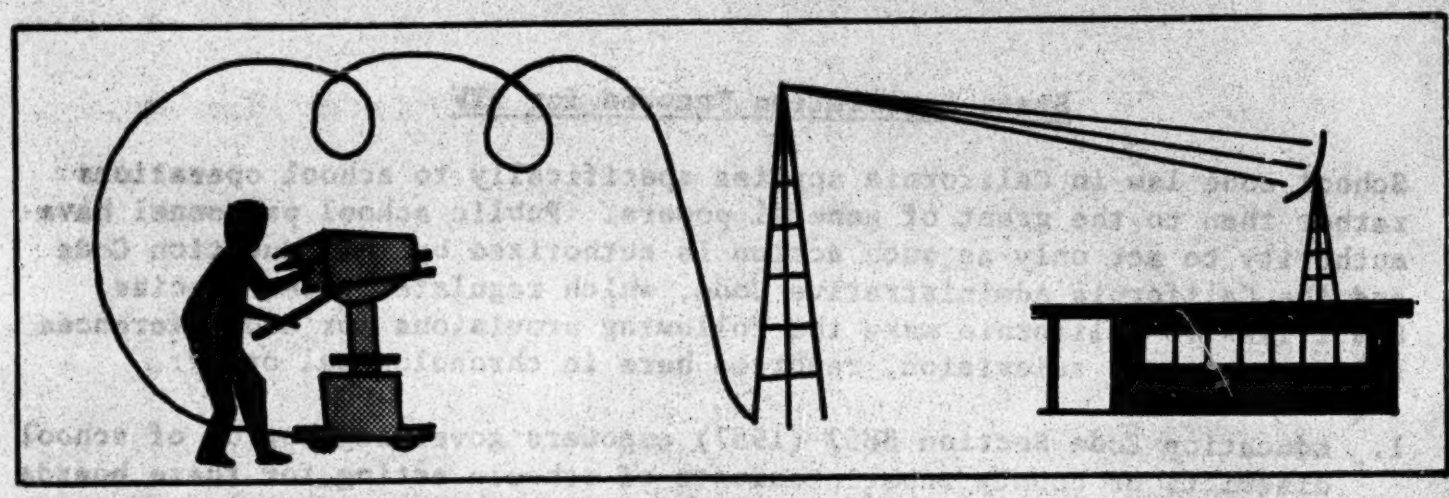

Introduction

Instructional Television in California has developed in many ways since the first statewide conference on educational television was called in December, 1952[1], and the first successful educational station in California[2] began broadcasting in June, 1954. Since those beginning years, the use of television for educational purposes, particularly for classroom instruction, has experienced continuous and rapid growth. Present interest in this medium of instruction is unmistakable.

This report[3] contains a brief summary of the organization and status of instructional television (ITV) within the State, the role of various school groups, including the State Department of Education, and the needs relative to ITV development as an increasingly important part of education itself. Although school people recognize the importance of all phases of educational television, the State Department of Education[4] is primarily concerned with its use in the public schools, grades K-14.

While educational television (ETV) refers to education in the broad sense and includes cultural, informational, and instructional programs, instructional television (ITV) generally applies to the specific use of open and closed-circuit television to attain particular curricular objectives.

ITV programs and lessons are intended to stimulate learning through the planned and sequential development of content and ideas. This may be achieved in classroom or group situations or as individualized instruction outside the classroom, but under the direction and control of an educational institution or organization.

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[1]Proceedings of the Governor's Conference on Educational Television, December 15-16, 1952, Sacramento: The State of California.

[2]Station KQED, Channel 9, San Francisco, California.

[3]Although every effort has been made to present up-to-date information, the ITV situation is in flux and it is difficult to be sure that the latest and most accurate information has been obtained.

[4]State Colleges and universities are under separate governing boards.

State Legislation Enacted for ITV

School code law in California applies specifically to school operations rather than to the grant of general powers. Public school personnel have authority to act only as such action is authorized by the Education Code and the California Administrative Code, which regulate State agencies. State laws in California make the following provisions for and references to instructional television, reported here in chronological order:

1. Education Code Section 8857 (1957) empowers governing boards of school districts or county superintendents of schools acting for these boards to enter into contracts to procure television broadcasts for use in the educational program of the public schools or colleges.

2. Education Code Section 8857 (as amended, 1961) permits school districts and county superintendents of schools to own, lease, and operate broadcast facilities for providing instructional television service to the schools.

3. Education Code Sections 8871-8877 (1961 and amended in 1963 and 1965) created within the State Department of General Services the position of Television Coordinator, and a Television Advisory Committee composed of the Director of General Services or his representative and:

   (a) One representative of the University of California, to be nominated by the board of regents.
   (b) One representative of the Trustees of the California State Colleges, to be nominated by the trustees.
   (c) One representative of the State Board of Education, to be nominated by the board.
   (d) One member who shall represent the existing community educational television channels.
   (e) One representative of a county superintendent's office, to be nominated by the Superintendent of Public Instruction.
   (f) One representative of a junior college district, to be nominated by the State Board of Education.

The committee shall elect one of its members as chairman. All are appointed by the Governor and serve at his pleasure.

4. Assembly Bill 9, passed by the legislature in 1963, set up a pilot project in San Bernardino County to provide data upon which to base further regulation and administration of instructional television in California. A total of sixty thousand dollars was allocated for a two-year period to reimburse districts contracting for program services at 25 cents per viewing student per year.

The success of this project demonstrated the need for additional financial support for program development and extension of the signal area, and resulted in official sanction of statewide support for instructional television.

5. Education Code Sections 6441-6443 and 18270 (1965) and California Administrative Code, Title 5, Education, Sections 84-84.6, permit school

districts to claim up to 50¢ reimbursement for each student in grades K-14 present in a classroom and instructed by television (open and closed-circuit) during the preceding school year, but allowance to the school district may not exceed one-half of the total cost to the district of providing ITV services. Further, it is required that the Superintendent of Public Instruction administer the law so that undue duplication of effort is eliminated and reasonable uniformity in programing is established. This legislation is generally referred to as the Farr-Quimby Act.

6. Education Code Sections 6441, 6443 and 18270 as amended (1967) authorize a county superintendent of schools to enter into contracts to procure educational television programs for schools and classes operated by him and allows reimbursement for such programs on the same terms as for school districts under his jurisdiction.

   This law also authorizes the Superintendent of Public Instruction to employ a television consultant, or other suitable personnel, for administration of such programs and directs him to adopt regulations providing for review and approval by the State Department of Education of plans for procuring instructional television services.

   The Superintendent of Public Instruction is also directed to adopt regulations providing for statewide coordination among regional instructional television agencies, offices of county superintendents of schools, school districts, and other agencies interested in instructional television services, in order to forestall unnecessary duplication and establish reasonable uniformity in the educational television programs developed or provided from State funds.

Although distinctions are usually made between ETV and ITV, it is to be noted that the Education Code and the California Administrative Code make no clearcut distinction; the latter defines "Instructional Television," "Educational Television," and "Television broadcasts" as "television programs used as integral parts of the instructional program included in the course of study adopted by the proper authority." (California Administrative Code, Article 10, 84.1)

Federal Legislation Affecting ITV in California

In addition to State legislation, federal legislation has for some years provided strong impetus to the development of ITV in California[1]. Of special importance to the schools are the following laws listed in order of their enactment:

1. The National Defense Education Act of 1958 (Public Law 85-864) provides matching federal funds for the purchase of equipment and materials to

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[1]It is well-known that rules and regulations of the Federal Communications Commission and the allocation of educational channels to California provided the base for development of educational television (includes instructional television) within the State.

improve instruction throughout the nation in science, mathematics, and modern foreign languages. Under this law, school districts are able to purchase television receiving sets, amplifiers, antennas, coaxial cable and converters, and portable television tape recorders.

Public Law 85-864 was amended in 1964 to include programs in English, reading, geography, history, and civics; and, in 1965, to include economics, and in 1966, industrial arts.

2. The Educational Television Facilities Act of 1962 (Public Law 87-447) authorizes federal funds to be used over a five-year period as matching grants for the acquisition and installation of transmission apparatus for noncommercial television broadcasting. Grants are limited to broadcast television facilities--not closed-circuit systems--and to equipment and its installation.

3. The Higher Education Act of 1965 (Public Law 89-329), Title VI, provides matching grants for closed-circuit television projects for institutions of higher education for use in specified subjects. Included are acquisition of equipment and facilities, television sets not part of closed-circuit systems, and video tapes. The provisions apply to junior colleges as well as to colleges and universities.

4. The Elementary and Secondary Education Act of 1965 (Public Law 89-10), Title I provides, among other things, funds for operating expenses for educational television facilities which may be included in the plan to provide educational opportunities to children in low-income families.

   Title II authorizes states to distribute funds to local school districts for the acquisition of library resources, including textbooks for the visually handicapped, and also audio-visual materials. Under this title <u>recorded</u> video tapes may be purchased or obtained on a rental, lease, or lease-to-purchase basis. Accompanying printed guide materials for teachers and students may also be acquired under the same provisions.

   Title III provides grants to local school districts to establish, in cooperation with other community and cultural interests, supplementary education centers which may carry on a wide range of activities, including "developing, producing, and transmitting radio and television programs for classroom and other educational use."

   Title V provides grants to strengthen state departments of education. This Title enabled the California State Department of Education to add a consultant in instructional television to the staff of the Bureau of Audio-Visual and School Library Education.

The foregoing laws account for major sources of federal support for ITV within the State, but they are not inclusive. Public Law 88-210, the Vocational Education Act, and PL 88-452, the Economic Opportunity Act, for instance, also provide assistance in one form or another for ETV facilities and/or services in certain types of special projects.

MILESTONES IN ITV LEGISLATION

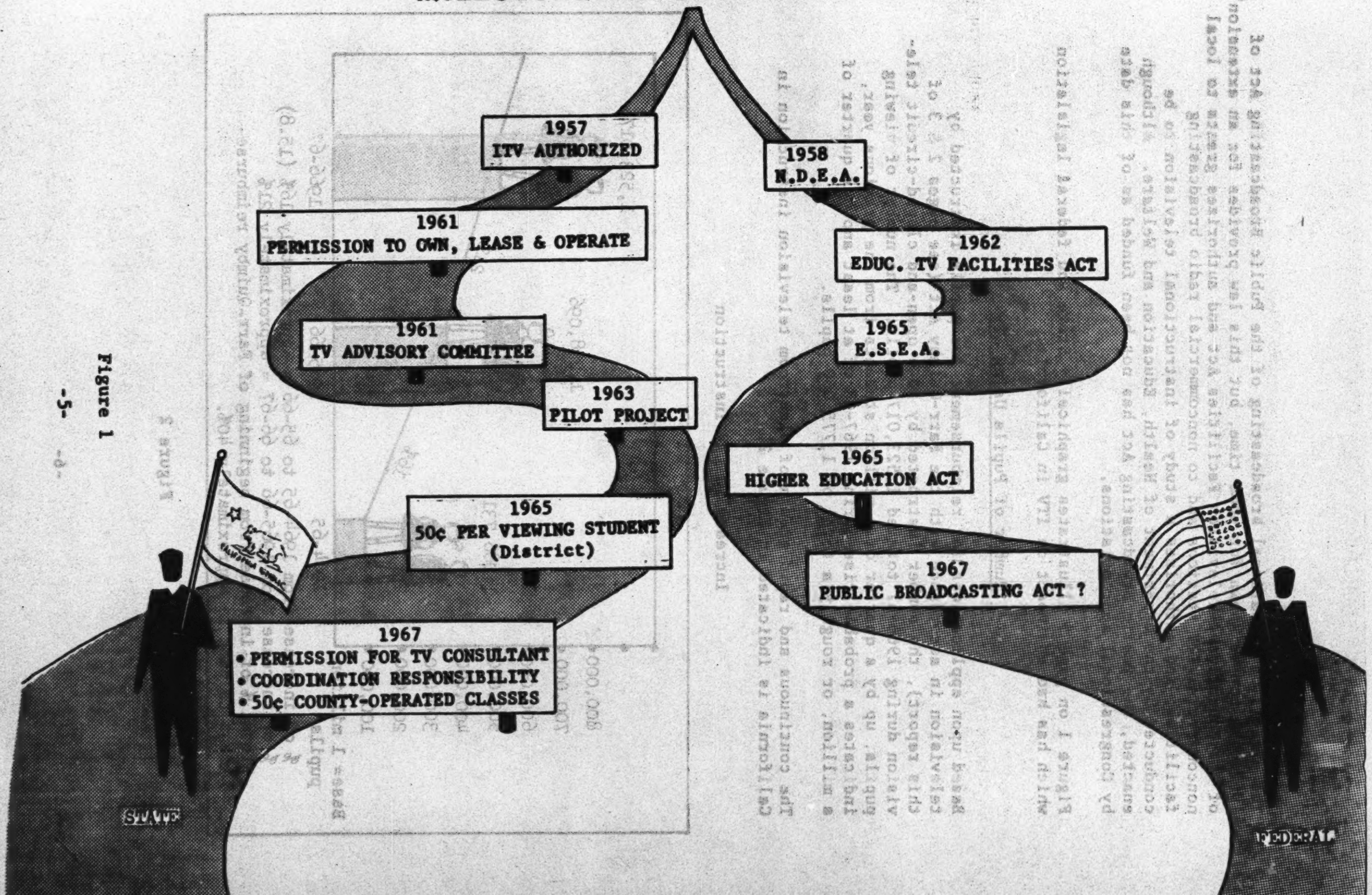


Figure 1

The effects on educational broadcasting of the Public Broadcasting Act of 1967 will not be known for some time, but this law provides for an extension of the Educational Television Facilities Act and authorizes grants to local noncommercial ETV stations and to noncommercial radio broadcasting facilities; and authorizes a study of instructional television to be conducted by the Department of Health, Education and Welfare. Although enacted, the Public Broadcasting Act has not been funded as of this date by Congressional appropriations.

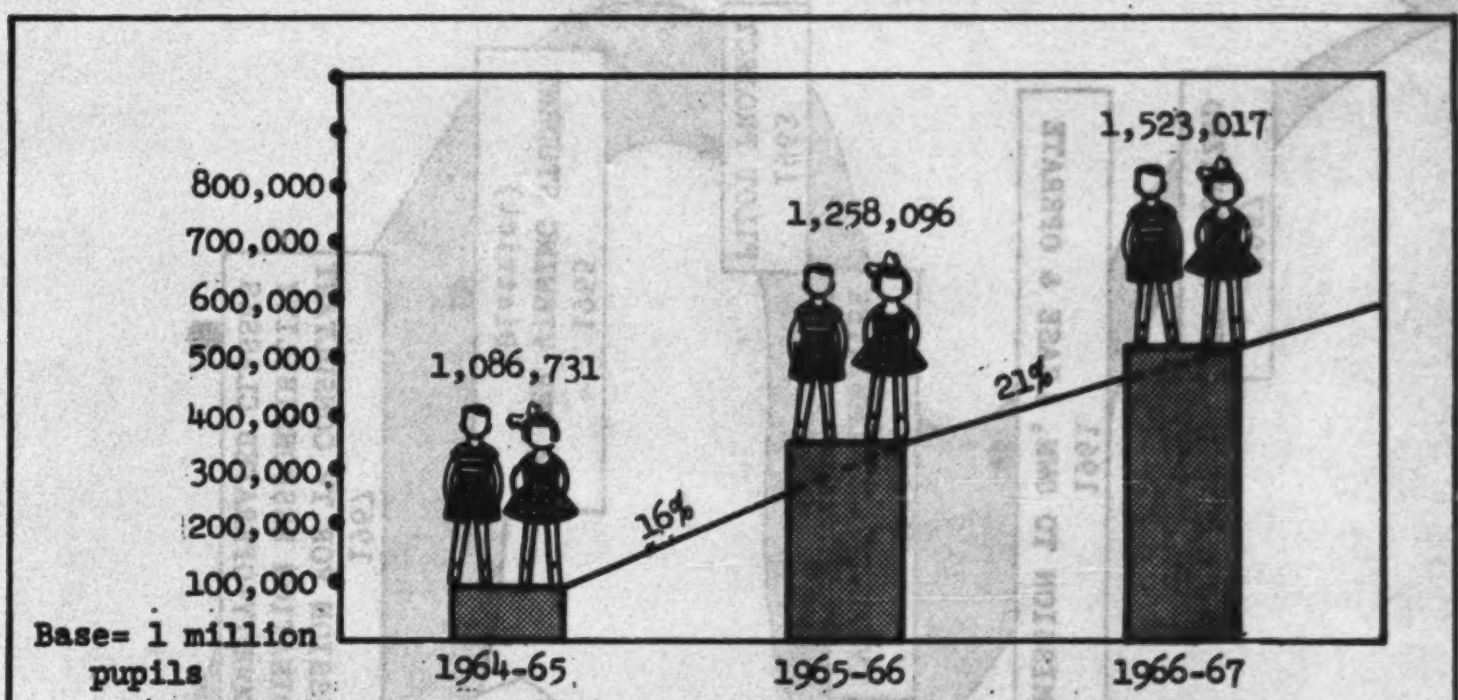
Figure 1 on page 5 illustrates graphically State and federal legislation which has had an impact on ITV in California.

Number of Pupils Using ITV

Based upon applications for reimbursement for pupils instructed by television in accordance with the Farr-Quimby Act (see pages 2 & 3 of this report), the number instructed by both open-and closed-circuit television during 1966-67 totaled 1,523,017 pupils. The number of viewing pupils, up by a quarter of a million students from the previous year, indicates a probable rise during 1967-68 of at least another quarter of a million, or roughly a total of 1,775,000 pupils.

The continuous and rapid growth of classroom television instruction in California is indicated in Figure 2.

Increase in ITV Instruction



% of increase from 1964-65 to 65-66 = approximately 16% (15.8)
% of increase from 1965-66 to 66-67 = approximately 21%
Total % of increase from beginning of Farr-Quimby reimbursement to date is approximately 40%.

Figure 2

Figure 2 (based on applications for reimbursement in accordance with the Farr-Quimby Act) shows that the percentage of increase from the first to the second year was approximately 16 per cent and from the second to the third year, approximately 21 per cent. The total per cent of increase in pupils instructed by television from the first year of reimbursement to the end of the third year approximates 40 per cent--evidence of the extent of growth.

Public School enrollment in California for grades K-14 in the fall 1966 totaled 4,519,371 pupils[1]. A classroom viewing audience of 1,523,017 (1966-67) pupils indicates that more than one-third (33.6 per cent) of the State's total school population is receiving instruction by television. (Figure 3)

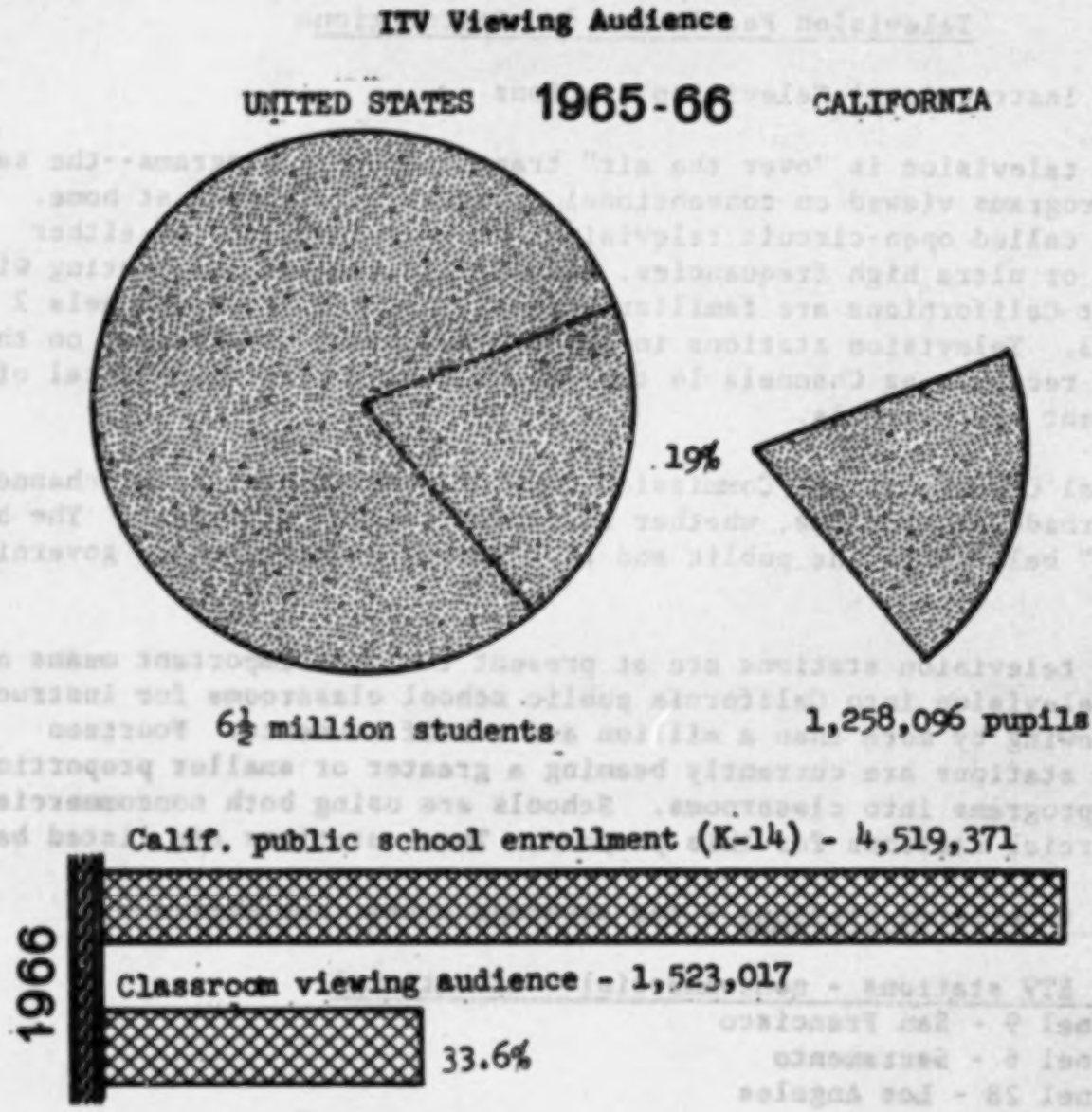


Figure 3

[1]"Enrollment in California Public Schools, Fall, 1966," California State Department of Education, Sacramento, 1967, p. 4.

Nationally, on the basis of available figures[1], six and a half million students across the nation in grades K-12 received instruction by television during the 1965-66 school year. In that same year, in California during the second year of reimbursement, 1,258,096 pupils received such instruction. These figures show that California accounted for approximately[2] 19 per cent of the nation's students who received some instruction by television that year. (Figure 3)

From the foregoing data, it is estimated that for 1967-68 instructional television in California will be able to claim approximately one-fifth of the national classroom viewing audience, although enrolling only one-ninth of the nation's public school elementary and secondary pupils (45,500,000)[3].

Television Facilities for Instruction

Broadcast Instructional Television Stations

Broadcast television is "over the air" transmission of programs--the same type of programs viewed on conventional television receivers at home. Sometimes called open-circuit television, it is transmitted on either very high or ultra high frequencies. VHF is the kind of telecasting with which most Californians are familiar because they see it on Channels 2 through 13. Television stations in the UHF broadcast band appear on the dial of a receiver as Channels 14 through 83 making possible a total of 70 different UHF channels.

The Federal Communications Commission controls the allocation of channels for all broadcast stations, whether noncommercial or commercial. The broadcast "air" belongs to the public and the FCC has specific rules governing its use.

Broadcast television stations are at present the most important means of getting television into California public school classrooms for instructional viewing by more than a million and a half students. Fourteen broadcast stations are currently beaming a greater or smaller proportion of their programs into classrooms. Schools are using both noncommercial and commercial stations for this purpose. These stations are listed below:

Broadcast television stations - for coverage areas, see Figure 4

Community ETV stations - noncommercial - educational
KQED Channel 9 - San Francisco
KVIE Channel 6 - Sacramento
KCET Channel 28 - Los Angeles
KIXE Channel 9 - Redding
KEBS Channel 15 - San Diego

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[1]Talk at 1967 NAEB Convention, Chairman Rosel Hyde, Federal Communications Commission.

[2]The number is only approximate since California data include junior college viewing which is not included in the national figures.

[3]Based on estimates from U.S. Office of Education and the National Education Association. (Reported in the Saturday Review, October 21, 1967, p. 67.)

BROADCAST INSTRUCTIONAL TELEVISION

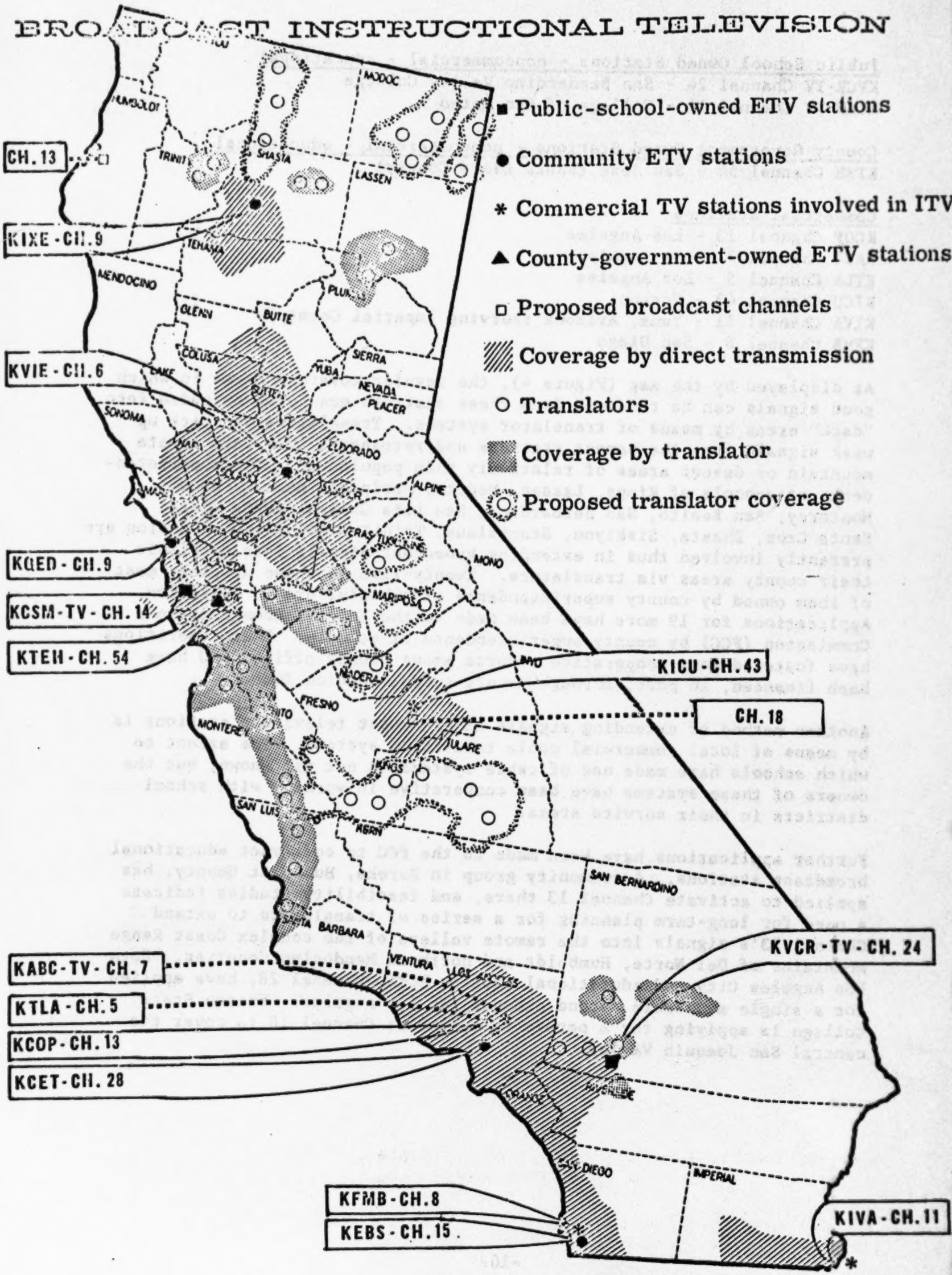

Figure 4

Public School Owned Stations - noncommercial - educational
KVCR-TV Channel 24 - San Bernardino Valley College
KCSM-TV Channel 14 - College of San Mateo

County Government Owned Stations - noncommercial - educational
KTEH Channel 54 - San Jose (Santa Clara County)

Commercial Stations
KCOP Channel 13 - Los Angeles
KABC Channel 7 - Los Angeles
KTLA Channel 5 - Los Angeles
KICU Channel 43 - Fresno
KIVA Channel 11 - Yuma, Arizona (serving Imperial County)
KFMB Channel 8 - San Diego

As displayed by the map (Figure 4), the regular coverage areas in which good signals can be received from these stations are being extended into "dark" areas by means of translator systems. Translators can pick up weak signals from the parent stations and retransmit them into remote mountain or desert areas of relatively thin population. The superintendents of schools of Kings, Lassen, Madera, Mariposa, Merced, Modoc, Monterey, San Benito, San Bernardino, San Luis Obispo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Stanislaus, Trinity, and Tulare Counties are presently involved thus in extending broadcast signals into or within their county areas via translators. Twenty-five of these devices, most of them owned by county superintendents of schools, are in operation. Applications for 19 more have been made to the Federal Communications Commission (FCC) by county superintendents of schools. These operations have fostered many cooperative efforts among county offices and have been financed, in part, through county school service funds.

Another method of extending signals of broadcast television stations is by means of local commercial cable television systems. The extent to which schools have made use of cable systems is not yet known, but the owners of these systems have been cooperative in working with school districts in their service areas.

Further applications have been made to the FCC to construct educational broadcast stations. A community group in Eureka, Humboldt County, has applied to activate Channel 13 there, and feasibility studies indicate a need for long-term planning for a series of translators to extend Channel 13's signals into the remote valleys of the complex Coast Range mountains of Del Norte, Humboldt and northern Mendocino Counties. Both Los Angeles City and educational station KCET, Channel 28, have applied for a single available second channel for Los Angeles. Fresno State College is applying for a permit to construct Channel 18 to cover the central San Joaquin Valley.

ITFS AND CLOSED CIRCUIT ITV

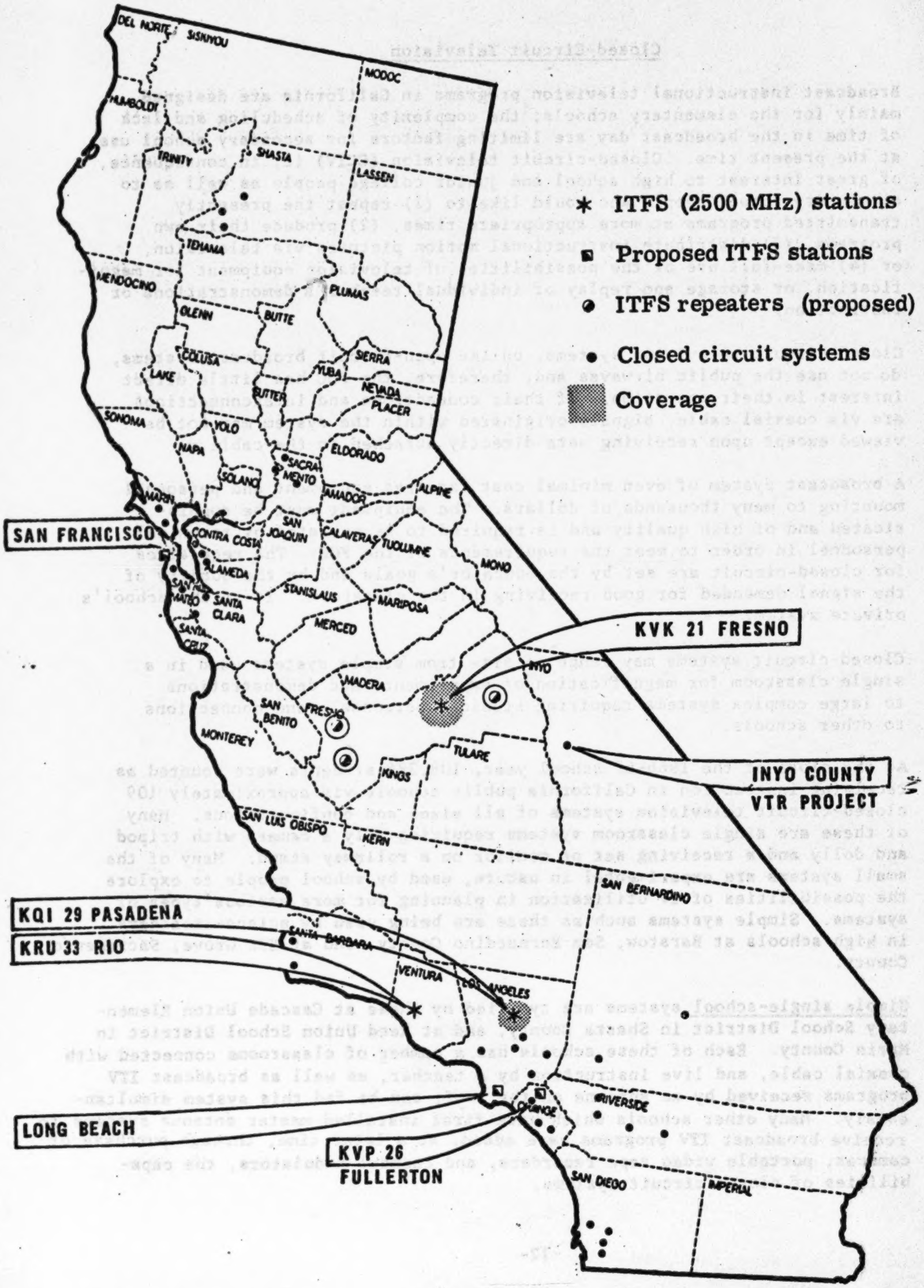

Figure 5

Closed-Circuit Television

Broadcast instructional television programs in California are designed mainly for the elementary schools; the complexity of scheduling and lack of time in the broadcast day are limiting factors for secondary school use at the present time. Closed-circuit television (CCTV) is, in consequence, of great interest to high school and junior college people as well as to elementary school people who would like to (1) repeat the presently transmitted programs at more appropriate times, (2) produce their own programs, (3) distribute instructional motion pictures via television, or (4) make full use of the possibilities of television equipment for magnification, or storage and replay of individual teacher's demonstrations or instruction.

Closed-circuit television systems, unlike open-circuit broadcast systems, do not use the public airwaves and, therefore, the FCC has little direct interest in their operation. If their connections and interconnections are via coaxial cable, signals originated within the system may not be viewed except upon receiving sets directly attached to the cable.

A broadcast system of even minimal cost requires equipment and personnel mounting to many thousands of dollars. The equipment must be sophisticated and of high quality and is required to be operated by technical personnel in order to meet the requirements of the FCC. The requisites for closed-circuit are set by the educator's goals and by the quality of the signal demanded for good receiving in the classroom. It is the school's private system.

Closed-circuit systems may range in size from simple systems used in a single classroom for magnification of experiments and demonstrations to large complex systems requiring studios, personnel, and connections to other schools.

At the close of the 1966-67 school year, 108,286 students were counted as receiving instruction in California public schools via approximately 109 closed-circuit television systems of all sizes and configurations. Many of these are single classroom systems requiring only a camera with tripod and dolly and a receiving set or monitor on a rollaway stand. Many of the small systems are experimental in nature, used by school people to explore the possibilities of TV utilization in planning for more serious types of systems. Simple systems such as these are being used by science teachers in high schools at Barstow, San Bernardino County, and at Elk Grove, Sacramento County.

Simple single-school systems are typified by those at Cascade Union Elementary School District in Shasta County, and at Reed Union School District in Marin County. Each of these schools has a number of classrooms connected with coaxial cable, and live instruction by a teacher, as well as broadcast ITV programs received by an antenna on the roof, can be fed this system simultaneously. Many other schools which have first installed master antenna systems to receive broadcast ITV programs have added, at a later time, through purchase of cameras, portable video tape recorders, and channel modulators, the capabilities of closed circuit systems.

More sophisticated single school systems have been installed in five high schools of the Fremont Union High School District in Santa Clara County and in two high schools of the Newport-Mesa District in Orange County. The systems in both of these school districts have multi-channel capability and allow not only for distribution of film to classes but for live programs also. Each system makes considerable use of the semi-professional types of portable video tape recorders. More than 11,000 students are thus instructed in the Fremont High School District. Junior colleges using well-developed systems are College of San Francisco, College of the Desert at Palm Desert, San Bernardino Valley College, and College of San Mateo. The latter two colleges combine a fully developed closed-circuit system with the broadcast station facility each operates.

Typical systems in which several schools are connected are located at Santa Ana (30 miles of cable, 30 schools, 543 classrooms, 32,050 students) and at Anaheim (26 miles of cable, 22 schools, 220 classrooms, 8,650 students). Both school districts are in Orange County. Both districts are equipped with highly sophisticated studios and both hire television coordinators and curriculum specialists, as well as television technical personnel, to operate and maintain their facilities. Equipped with a small but efficient studio and staffed with a coordinator, an engineer-technician, and three teachers, the Lafayette School District in Contra Costa County produces and video-tapes lessons in Spanish, literature, social science, music, mathematics, and science, and replays these lesson tapes into its system through 10½ miles of cable to 2,553 students in 124 classrooms in 10 schools. Several years ago, the Lennox School District connected five schools by means of coaxial cable and is currently distributing lessons in science, Spanish, music, and social science to 1,260 fourth to eighth grade students in its five schools.

Instructional Television Fixed Service

So far, this discussion has confined itself to closed-circuit television systems with cable connections. When considering multi-school systems, however, another method of connection should also be included--ITFS. ITFS, Instructional Television Fixed Service, is a form of broadcasting in which the transmitted signal is identical in form to, but higher in frequency (2500 megahertz) than, that of a standard television broadcast station. Receiving sites are provided with a special, highly directional dish or corner antenna oriented in the direction of the transmitter location. As the signal can be received only at these "fixed" sites so equipped, the system becomes in essence a private or closed-circuit system. After reception the signal is distributed by coaxial cable throughout buildings to standard television sets. Channels must be designated for fixed service by the FCC and applicants must apply to the Commission for them. Furthermore, licensed personnel for operation and maintenance of the transmitter are required. ITFS was conceived by the FCC for educational purposes, and applicants must represent accredited public and private schools, colleges and universities. No more than four channels may be assigned to an applicant for one area; however, the ability to transmit on these channels by means of one transmitting antenna makes the system very flexible.

Distances of transmission vary between five and 10 miles, according to terrain, but the signal can be boosted by relays similar to broadcast translators. In consequence, an ITFS system could start out small and by addition of relays become a system of considerable range.

At the present time, three public-school-operated ITFS stations are on the air. One is at Rio School District in Ventura County, the second at Pasadena, and a third is at Fresno. This Fresno station, operated by the county superintendent of schools of that county, will ultimately, by means of relays, have the potential to reach every school district in the county. The Fresno County station is a "closed-circuit" station which draws on a large number of districts for its program planning. The city school districts of Long Beach and San Francisco, as well as a group of districts in North Orange County, are in various stages of planning for ITFS facilities.

Video Tape Recorders

Among the most exciting technical developments affecting television during the last few years has been the television tape recorder, or video tape recorder. A few years ago all programs had to go on the air live. The only method of recording was by "kinescope" or motion picture film. An expensive video tape recorder (VTR) using magnetic tape two-inches wide was developed for use by broadcast studios but was too expensive for use by most school agencies. However, in 1963, portable models using a helical scanning pattern came on the market. Some were adapted for two-inch tape; some for one-inch tape. During the last two years there has been a proliferation of types of recorders using one-inch and one-half inch tape.

Not one of these helical (or "slant track") machines, however, is compatible with any other machine of another manufacture. An American company, however, has presented a single tape format for use on several of its own machines, which vary in cost from $1,000 to $7,200. The controversy over compatibility of tapes may well continue for some time before a workable standard is reached. Meanwhile, school agencies will continue to purchase these machines and make use of them for such activities as storage and replay of instructional material, teacher in-service education, and self-evaluation.

Video tape recorders are even used to extend signals into remote areas to replay prepared programs rented from professional tape libraries (such as National Center for School and College Television and Great Plains). A minimal program of this nature is currently being carried on by the County Superintendent of Schools Office in Inyo County.

At the present time, it is estimated that approximately 135 of the portable television tape machines are being used in the closed-circuit TV systems of California public schools. Most school people have justified purchase of these machines by careful planning and assessment of their function in the instructional programs in which they wish to use them.

Sources of Financial Support

At the end of the 1966-67 school year, over 400 school districts were receiving television signals for instructional purposes. In these districts, 1,523,017 students were viewing television at a cost to the districts of $2,373,966. This sum was paid mainly to television stations for production and transmission of instructional television lessons, but included production and operational costs of closed-circuit television. It did not include capital outlay costs for receiving antennas, master distribution systems, receiving sets, or other types of television equipment.

What, then, are the sources for funding ITV? The basic and continuing source is local taxation and is one of the responsibilities of local boards of education. Local tax money is expended not only for television lessons, but also for teacher's guide books, supplementary printed materials, and materials such as audio tapes and disks. The districts, in some cases, pay the charge directly to the broadcast station, but more frequently to a regional instructional television association (pp. 17-20). The charge for service varies from 50¢ to $1.35 per pupil from station to station or from region to region. For these services, reimbursement from State funds amounted to $648,087 in 1966-67 in accordance with the Farr-Quimby Act (p.3), which allows matching funds up to 50¢ per student present in the classroom and instructed via television. The Bureau of Audio-Visual and School Library Education has the responsibility for administering the regulations of the Act.

During the last eight years, the National Defense Education Act (p.4) has been of great assistance in the purchase of master antenna systems, receiving sets, portable video tape recorders, and other capital outlay equipment associated with television instruction. It is estimated that during these eight years more than 12,000 receiving sets and over 350 antenna systems have been installed with the use of NDEA matching funds of more than $2,000,000. This source of financial assistance still continues to be one of the most used by districts in supplying schools with equipment for receiving broadcast signals.

Specially designed for assistance to the educational broadcaster for equipment acquisition is the Educational Television Facilities Act (p.5). Although over one million dollars in funding has been received by seven educational television stations during the last three years, the quota for California from this Act has proved inadequate to meet the total need for assistance. To extend the broadcast signal from the centers of population, where most of the broadcast facilities are located, into the less populated areas and the areas of difficult mountainous terrain, is apparently a function for which this Act was not designed. To meet this particular need, county superintendents of schools have exercised leadership in promoting the use of translators. Financial responsibility for these translators (29 currently in use and 15 more projected) rests largely with the school districts served. In contracting with districts for television service, county superintendents have had to resort to the County School Service Fund for matching funding (with districts) to pay for feasibility studies and later, for the translator systems.

Public Law 89-10, the Elementary and Secondary Education Act (pp. 5 & 6), has aided a number of school districts in establishing ITV facilities. Title I projects have enabled some school districts to install coaxial cable connection systems between schools. The Fresno County Superintendent of Schools has been able to coordinate districts under his jurisdiction to pool their allowances from this law for the installation of a highly sophisticated ITFS (2500 megahertz) system covering the whole county. An exemplary Title III project at Beverly Hills is the source of funding for a central programing "Dial Access" video system. From this same source, KEBS, Channel 15 in San Diego, received a grant of $180,000 for experimentation in program development utilizing the systems approach.

The Higher Education Act of 1965 (PL 89-329) has had considerable effect in terms of assistance to California Junior College districts and community colleges. Designed particularly to assist in the acquisition of closed-circuit and associated television equipment, Title VI-A of this Act has materially aided this type of public school agency. Junior colleges are especially adapted by need, organization, and personnel to the various utilization possibilities of closed-circuit television, and many of them have acquired CCTV equipment.

During the early years of educational television development, prior to the more recent federal sources of assistance, educational broadcasters had to rely on sources of funding typified by the the Ford Foundation. There is hardly an ETV station or large closed-circuit facility which has not profited from grants derived from these sources.

Organizational Patterns for Instructional Television in California

Regional ITV Groups and Stations

Of all the patterns which have emerged in instructional television in California, most significant is the development of regional ITV advisory councils and/or associations. These cooperative systems of offices of county superintendents of schools and administrative personnel of participating school districts usually perform the same general functions, which include some of the following:

1. Coordinating activities relating to the planning and production of ITV programs using the facilities of the broadcast stations.

2. Handling (in most instances) contractual arrangements with the stations.

3. Planning, on the basis of curricular needs, broadcast television programs.

4. Evaluating and approving, for broadcast purposes, recorded television programs from other than local sources.

5. Assisting in the selection of television teachers, program production, study-guide development and distribution.

6. Providing consultant services and assistance in the utilization and evaluation of ITV.

7. Encouraging and assisting, where possible, in experimentation, research, and creative approaches to ITV development.

8. Providing in-service programs for teachers and administrators.

9. Setting policy, managing and directing the fiscal and business aspects of the organization.

A list of the regional groups, or associations and institutions from northern to southern California and their transmitting stations follows. (Figure 6)

Instructional Television Groups, Areas Served, and Stations

Region, Institution and/or Regional Association	Counties[1]	Transmitting Stations
NITAC - Northern Instructional Television Council	Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity	KIXE Channel 9 (ETV) Redding
VITA - Valley Instructional Television Authority	Amador, Butte, Calaveras, Colusa, El Dorado, Nevada, Placer, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, Yolo, Yuba	KVIE Channel 6 (ETV) Sacramento
BRITE - Bay Region Instructional Television for Education	Alameda, Contra Costa, Mendocino, Merced, Monterey, Napa, San Benito, San Francisco, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma	KQED Channel 9 (ETV) San Francisco
San Mateo City College	San Mateo	KCSM-TV Channel 14 (ETV) San Mateo City
Santa Clara County (Government)	Santa Clara	KTEH Channel 54 (ETV) San Jose
San Joaquin-Sierra Joint Powers Association[2]	Kings, Madera, Mariposa, Tuolomne, Tulare	KQED Channel 9 (ETV) San Francisco
Fresno County Schools	Fresno	KICU Channel 43 KVK-21 (ITFS) Fresno (city)
Los Angeles City Unified School District	Los Angeles City	KABC-TV Channel 7 KTLA Channel 5 (Commercial) KCET Channel 28 (ETV) Los Angeles

Figure 6

[1]Imperial County, through an informal arrangement with Yuma, Arizona station, KIVA Channel 11, receives instructional television programs.

[2]In this same area, the San Joaquin Valley Community Television Association is working actively with Fresno State College relative to the latter's application for a station..

Region, Institution and/or Regional Association	Counties	Transmitting Stations
RETAC - Regional Educational Television Advisory Council	Kern, Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Ventura	KCET Channel 28 (ETV) KCOP Channel 13 (Commercial) Los Angeles
EAC/J.C. TV - Educational Advisory Council on Junior College Television	Junior Colleges in RETAC Area	KABC-TV Channel 7 (Commercial) Los Angeles
ITAC - Inland Television Advisory Committee	San Bernardino	KVCR-TV Channel 24 (ETV) San Bernardino
San Bernardino Valley College	Junior College District only	KVCR-TV Channel 24 (ETV) San Bernardino
SDA/ITVA - The San Diego Area, Instructional Television Authority	San Diego	KEBS Channel 15 (ETV) San Diego
San Diego Schools Adult Education Department[1]	San Diego City	KFMB Channel 8 (Commercial) San Diego

Figure 6 (Continued)

Regional instructional television associations and groups are serving schools in 50 California counties. Cooperative arrangements in some instances involve overlapping membership and participation in more than one association. The relationship of the ITV associations to the transmitting stations is quasi-legal.

The organizational pattern of these associations varies from informal to formally structured groups, organized as non-profit corporations. Likewise, the number of staff members varies, depending on size, need, financial support, and other factors, from a single full-time director-producer to an executive secretary with supporting professional and clerical staffs. Funds to support their operation are derived from participating school districts and County School Service funds (discussed elsewhere in this report).

Central to each group are established curriculum committees, whose members are responsible for such activities as assessing program needs, evaluating ITV materials from all sources, and planning for and recommending new programs. These committees, involving large numbers of school district personnel, function in many curriculum areas: modern foreign languages, mathematics, language arts, social science, science, art, music, health, and physical education, industrial arts, and so on. As many as 140 educators may be involved in the planning and production of a program series. The organization chart of BRITE, one such association, indicates one pattern for a regional group (Figure 7); another pattern appears in the organization chart for VITA (Figure 8).

[1]Three series are broadcast for which adults may enroll, view at home, and receive high school credit toward a high school diploma.

Bay Region Instructional Television for Education

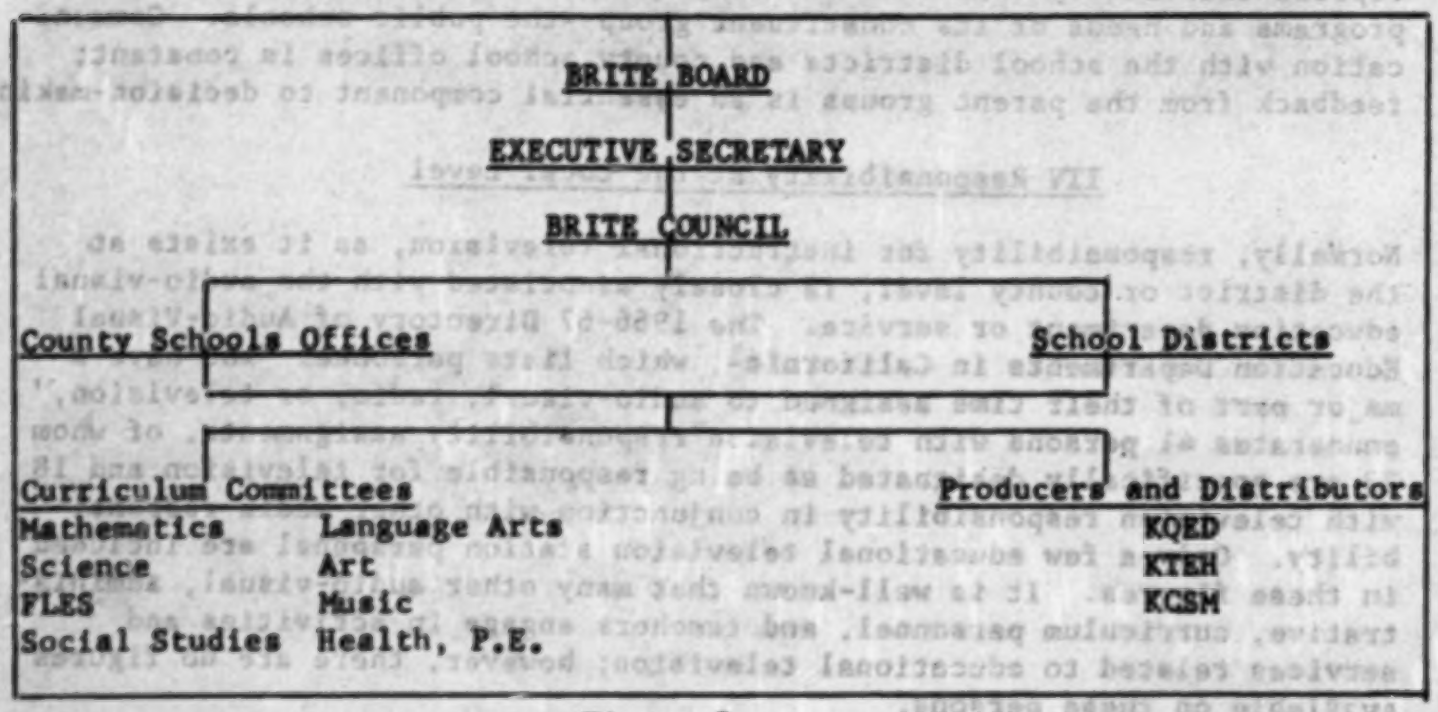

Figure 7

Valley Instructional Television Authority

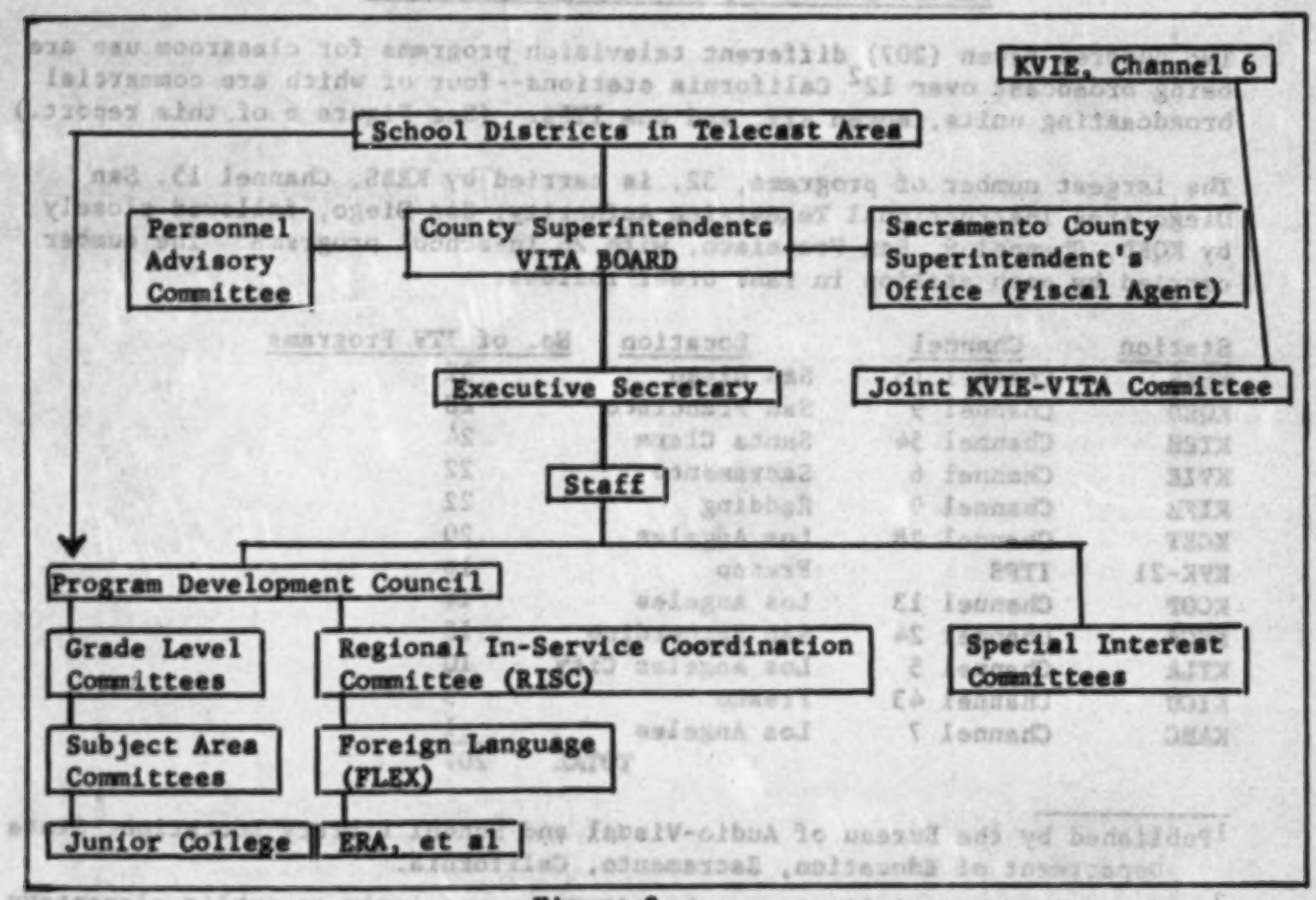

Figure 8

No group or association functions as an autonomous entity; each is a representative body sensitive and responsive to the policies, educational programs and needs of its constituent group--the public schools. Communication with the school districts and county school offices is constant; feedback from the parent groups is an essential component to decision-making.

ITV Responsibility at the Local Level

Normally, responsibility for instructional television, as it exists at the district or county level, is closely associated with the audio-visual education department or service. The 1966-67 Directory of Audio-Visual Education Departments in California[1], which lists personnel "who have a major part of their time assigned to audio-visual, radio, or television," enumerates 41 persons with television responsibility assignments, of whom 23 are specifically designated as being responsible for television and 18 with television responsibility in conjunction with other media responsibility. Only a few educational television station personnel are included in these figures. It is well-known that many other audio-visual, administrative, curriculum personnel, and teachers engage in activities and services related to educational television; however, there are no figures available on these persons.

ITV Programs for Classroom Use in Public Elementary and Secondary Schools

Two hundred seven (207) different television programs for classroom use are being broadcast over 12[2] California stations--four of which are commercial broadcasting units, seven ETV, and one ITFS. (See Figure 6 of this report.)

The largest number of programs, 32, is carried by KEBS, Channel 15, San Diego Area Instructional Television Authority, San Diego, followed closely by KQED, Channel 9, San Francisco, with 28 in-school programs. The number carried by each station in rank order follows:

Station	Channel	Location	No. of ITV Programs
KEBS	Channel 15	San Diego	32
KQED	Channel 9	San Francisco	28
KTEH	Channel 54	Santa Clara	24
KVIE	Channel 6	Sacramento	22
KIXE	Channel 9	Redding	22
KCET	Channel 28	Los Angeles	20
KVK-21	ITFS	Fresno	16
KCOP	Channel 13	Los Angeles	14
KVCR	Channel 24	San Bernardino	13
KTLA	Channel 5	Los Angeles City	10
KICU	Channel 43	Fresno	5
KABC	Channel 7	Los Angeles	1
		TOTAL	207

[1]Published by the Bureau of Audio-Visual and School Library Education, State Department of Education, Sacramento, California.

[2]KCSM-TV, ETV Channel 14, is not broadcasting regularly to public elementary and secondary schools. Arizona Station KIVA, Channel 11, and San Diego Station, Channel 8, are not included; the former is outside of California; the latter broadcasts adult education programs but not for classroom use.

Of the 207 ITV programs, 71 are carried by more than one station. This total does not include rebroadcasts of programs by each station to meet scheduling needs of the schools. Neither does it include three series of adult education programs in San Diego, under the direction of the Department of Adult Education of the San Diego City Schools, broadcast over Channel 8, which are not used in classrooms, but for which viewers may receive high school credit.

A breakdown of subjects taught by television as shown in Figure 9, reveals that 10 subject areas are covered, with the greatest number of programs televised for social science and the next greatest number for language arts. The number of programs for each subject area carried by more than one station is also indicated in Figure 9.

SUBJECT AREA	NO. OF PROGRAMS	NO. OF THESE CARRIED BY MORE THAN ONE STATION
1. Social Science	51	17
2. Language Arts	39	15
3. Music	27	10
4. Science	20	8
5. Spanish	18	8
6. Math	15	5
7. Science Health	13	5
8. Art	7	2
9. P. E.	6	1
10. French	3	0
TOTAL	199	TOTAL 71

Eight programs do not fall into a specific curriculum area.

Figure 9

Heading the list of programs carried by more than one station is "Places in the News," broadcast by eight stations; followed by "All About You." "Sing, Children, Sing," "Wordsmith," and "You and Eye," each carried by five stations. "Una Aventura Espanola," "Roundabout," "Stepping Into Rythm," and "Geography," are televised by four stations.

By far the greatest use of television programs is in the elementary school. The largest number of programs is broadcast to the intermediate or middle grades--about twice the number of those telecast for either primary or upper-grade reception. Programs televised only for secondary school use make up less than 10 per cent of the total number of broadcasts.

For intermediate grades, programs in social science, language arts, music, and mathematics are, in this order, most available to classrooms. For the primary grades, language arts, social science, and science are the three subjects most often televised. Spanish language broadcast series, with a total of 10 different programs, are used in both intermediate and upper grades and are broadcast in all areas of the State.

In-service television programs for teachers are broadcast both as series and as single programs. A total of 21 are scheduled by six stations. (Unscheduled programs are also broadcast.) Eight of the in-service programs are for

language arts, three are for the teaching of Spanish, and two are designed for art. The remainder are in various other curricular areas. Three stations, KQED, KEBS, and KCET, broadcast 15 of the 21 in-service programs.

Sources of Programs

Approximately one-fourth of the television series are locally produced, with KQED producing the largest number. The remaining three-fourths of the programs listed on page 21 in various subject areas are procured from pre-recorded telecourse centers or libraries--sources outside the State.

ITV Committees

Public School Instructional Television Committee (PSITV)

A Public School Instructional Television Committee composed mainly of administrators of television activities was appointed in 1965 by the State Superintendent of Public Instruction to carry out, among other functions, the following responsibilities:

1. To work with and assist the State Department of Education and the State in developing plans for the orderly and effective development of instructional television within the State.

2. To provide guidance to the State Superintendent of Public Instruction and to other State Department of Education personnel on matters relative to instructional television--legislation, coordination, standards, in-service teacher education, utilization and evaluation, program planning, production, equipment, facilities, and so on.

3. To develop close contact and working relationships among agencies and persons interested in the use of ITV for educational purposes.

4. To upgrade, in general, the quality and quantity of ITV in California.

Television Advisory Committee

The offices of the Television Coordinator and the State Television Advisory Committee (see p.2), established by the Legislature in 1961, have responsibility for endorsing and approving applications for funds under the Educational Facilities Act (1962), and for all applications to the Federal Communications Commission relative to educational television licensing. At the direction of the Committee, Hammett and Edison, Consulting Radio Engineers (San Francisco), conducted an extensive engineering study (1965) of broadcasting facilities for communities over 1,000 population, and the interconnecting network required to provide educational television service throughout the State, and reported its findings to the Committee. This report provides an important engineering base for development of statewide educational broadcast services.

The Television Coordinator, at the request and/or direction of the Committee, carries out the following responsibilities prescribed in the Education Code (Section 8875):

1. The Television Coordinator shall prepare a plan for television to serve the educational needs of the State. Such plan shall assure the most effective and economical utilization of human resources, public funds and channels of transmission. The Coordinator shall also:

2. serve as the official State agency for processing applications for federal funds which may become available for television for educational purposes, and for receiving and distributing such funds;

3. act in an advisory capacity in recommending to the appropriate federal agency or agencies the allocation of television channels which become available for educational purposes;

4. coordinate the activities of the various public and nonprofit agencies concerned with television for educational purposes; and

5. serve as a clearinghouse for information on television for educational purposes.

Other Committees

Members of two 2500 Megahertz Advisory Committees, one in the Los Angeles area and the other in the San Francisco area, are concerned with the many problems and possibilities of ITFS, including the technical, legal, financial, and operational aspects of such installations for school use. These groups also serve as subcommittees of the National Committee for the Full Development of the Instructional Television Fixed Service (established by the FCC).

At least two statewide professional organizations, the Audio-Visual Education Association (AVEAC) of California, and the California Association for Supervision and Curriculum Development (CASCD) have committees who study and report on the many phases of ITV development in California. A number of counties, cities, and districts and institutions have local ITV groups which are investigating and studying ITV.

State Department of Education
Responsibility for the Educational Use of Television

Historically, the State Department of Education has been charged with constitutional responsibility for education in the public schools of California. The State Department of Education would be lax in carrying out its responsibility if it did not continue to encourage and assist schools to use television to broaden and deepen learning, or did not provide leadership and assistance to facilitate and improve the quality and quantity of television use for instructional purposes.

In Perspective

Interest in and concern for educational television[1] which encompasses instructional television programs and programs of a cultural, informational

[1]The term "instructional television" had not yet come into general use.

nature which can be used for educational purposes (see p.1), dates back more than 15 years to concerted efforts by the State Department of Education to help procure educational television channels[1] for California. In 1952, after allocation by the Federal Communications Commission of eight educational channels to California, the State Superintendent of Public Instruction promulgated four points[2] relative to the development of television resources for education within the State, as follows:

1. Educational television involves much more than classroom applications. It is an educational resource belonging to all the people, to be used by all the people for the benefit of all the people.

2. This means that the financial support and use of it must be much broader than the present structure for financing education within California. Educational television involves all groups concerned with public interest, including State and local agencies of government.

3. Since it concerns all the people, State level planning and assistance will be needed. Orderly step-by-step developments must be directed toward eventually making educational television facilities available to all the people of the State.

4. Local responsibility for program planning, presentation, and utilization must be accepted and protected.

In December 1952, Governor Earl Warren called a statewide conference to discuss (1) the proper role and conception of educational television for educational purposes and (2) problems related to the development and use of the channels allocated to California. From this historical meeting came recommendations reflecting a composite of ideas expressed by the majority of conferees (2500 community leaders) through the chairmen of the various divisions. These recommendations[3] were:

1. Since the individual's freedom of access to television has become essential to the effective exercises of his right of freedom of speech, freedom of information, and freedom of human intercourse, it is the resolution of the Division chairmen of the Conference that every step be taken by the citizens of California to insure the fullest acceptance, use, and support for educational purposes of the eight noncommercial television channels offered to the State of California by the Federal Communications Commission, and that steps be taken to procure channels necessary to assure statewide coverage.

2. That the intention of Governor Warren to appoint a Citizens' Advisory Committee for Educational Television is most appreciatively welcomed and heartily approved; and that the purpose and constitution of such a body should insure the widest possible public and private, official and non-official, participation in and support for educational television by all the citizens of California, whereby the television

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[1]Allocated April 14, 1952 by Federal Communications Commission.
[2]The Governor's Conference on Educational Television, 1952, p. 24.
[3]Ibid. pp. 55-56.

educational resources available to the State of California shall belong to all the people, be used by all the people, and be used for the benefit of all people.

3. That to the end of securing the widest possible benefit to the citizens of California from educational television, the term education shall be conceived in a total sense, embracing its widest possible meaning and significance for the individual and public welfare, and affecting the educational needs and interest of every citizen; and among other desirable purposes promoting appreciation and love of State and country and of the free and democratic American way of life.

4. That while the public interest in educational television will be best served by application of the normal democratic procedure of integration and coordination at the State level, there shall be preserved, to the maximum extent possible and effectually practical, responsibility at the local level for implementation of educational television policies and programs, so that they shall best satisfy the interest and need of the citizens of California as organized on their present community levels of free public and private cooperation: reserving to any over-all agency only the responsibility for the defining of those functions designed in the broadest possible terms to secure and reconcile the interest of the individual, the community, the State, and the Nation.

5. That the Governor of California be invoked to assume an active concern in the development of measures and legislative, administrative, and financial machinery designed to use and apply the resources of educational television in the State of California, and that all possible State assistance and planning be made available so as to secure the maximum benefit and utilization of educational television resources in the interest of all citizens of the State of California.

6. That, so far as is technically and otherwise practicable, the principle of equalization be observed in proportioning between all geographical areas of the State the benefits to be furnished by the educational television media allocated to the State of California.

7. That the present cooperation of commercial television in providing for educational television is highly appreciated, and that their continued and expanded assistance be sought to insure the most effectual provision for the public of noncommercial educational television.

8. That in any broad definition of the areas of human endeavor and interest compassed within the term education, there shall be preserved a careful balance in order that there shall be no over-emphasis upon any single field or function: and that to this end no one participating interest shall gain any undue interest or control; and the defining of control and programming shall, so far as practicable, be reduced to the smallest unit representative of individual organization for the community benefit. The people of California who have a vital interest in the impact on every aspect of their lives of the media of educational television should be careful not to forfeit control thereof at any level of their self-government.

In 1953, the Governor's Citizens Advisory Committee was appointed to counsel the Governor on matters regarding educational television. In his opening remarks to this group at its first meeting, the Governor stated several points which are important to an understanding of the background and concepts underlying the development of ETV within the State. The following quotes are excerpted[1] from Governor Warren's instructions to the Citizens Advisory Committee:

"I want to say in the forming of this Committee it has not been done by pre-arrangement. I have not talked personally to a single person on the Committee. There isn't anyone that is committed to any kind of a program unless they have through their own activities expressed themselves one way or another. We expect people to express themselves and are hopeful those expressions will be for the best interest of the State. I have tried to balance the Committee so that all people who should be represented are represented here. I think all viewpoints can be expressed through this representation.

. . . . . .

I want to tell you what my own views are so far as educational television is concerned. In the first place, I do not want it to be a competitive activity. I do not want it to compete in any way, shape, or form with private enterprise or with the private television concerns. I want to see it devoted strictly to education. I do not want to see it get into the field of entertainment or in any field that rightfully belongs to the commercial world. I just want to see this powerful agency directed toward education in order that our youngsters, and our oldsters too, may get the greatest benefit from it.

Another thing I want to impress very, very strongly upon everyone here is the fact that the last thing I want to see done would be to set up any kind of an agency that would have any political implications of any kind.

I would want any agency we set up to control the situation so that under no circumstances could a State administration or any one in it use it for their own personal aggrandizement or for the advocacy of their political beliefs. I believe whatever we do should be entirely within the field of education and should be so circumscribed that it cannot be used for anything but educational purposes.

. . . . . .

I have no program to give this Committee. All I want to see is for something to evolve."

The foregoing statements, in many ways, have served as guidelines; they have significantly influenced the development of educational television in California and the State Department of Education's role in that development.

Present Responsibilities

Currently, at the State level in the Department of Education, responsibility for educational television[2] has been assigned to the Bureau of Audio-Visual

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[1]Excerpted from "Minutes of the Governor's Citizens Committee on Educational Television." February 10, 1953.

[2]Reference here is to ITV, instructional television as discussed in this report, and the educational uses of informational and cultural TV programs.

and School Library Education. At present, under the direction of the Bureau Chief, two staff members carry out television activities. One consultant is employed full-time; another, designated as consultant in audio-visual education, spends a major portion of his time in television-related activities. A full-time secretary serves the two consultants. The two positions are funded under provisions of ESEA, Title V, and NDEA, Title III, respectively.

Although the position of (educational) television consultant has been authorized by the State Legislature, no budgetary allocation of State funds has yet been made for a regular and permanent staff member. Federal grants have enabled the Bureau, with its limited staff, to meet only partially the needs and requests for services that now exist and are continuing to increase as more and more districts become aware of the possibilities of instructional television.

Leadership in television for education at the State level involves responsibility for activities and services in the following areas:

1. Coordination of the activities of groups, associations, and institutions concerned with ITV[1] for more effective development of instructional television throughout the State. Coordination is not conceived of as directing or controlling activities, but rather a linking together and integrating of activities and services in terms of needs and goals which are compatible to educational patterns within the State.

2. Dissemination of information relative to ITV developments throughout the State.

3. Administration of the Farr-Quimby Act. This involves the development and distribution of the proper forms, and the review for approval of plans of school districts and offices of county superintendents of schools for procuring instructional television services for their respective educational programs.

4. Consultation with administrators, school groups, and ITV regional associations on such matters as: program planning in terms of immediate and long-range curricular needs, evaluation, pre-service and in-service education of teachers, and the utilization of ITV in school programs.

5. Assistance to schools in planning for ITV development. This involves such tasks as providing technical information about equipment and facilities, publishing studies and reports, initiating surveys, and assisting areas of population sparsity to obtain and use ITV. It also includes consultation with individuals and groups seeking to develop television projects that may be funded from various sources.

6. Encouragement of research and experimentation in program production, evaluation, utilization, and assistance in the development of research projects.

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[1]See page 1 for definition of ITV.

7. Preparation and publication of reports and bulletins on ITV.

8. Conducting informal and sometimes formal surveys or studies related to ITV.

9. Advising and working with groups in matters of legislation related to instructional television.

Areas of Need for the Future

The results of an informal survey conducted among people actually involved with instructional television in the public schools in California indicates many needs for expanded, as well as new, services from the State Department of Education. These needs for services, reported to the California State Board of Education on June 19, 1967[1], follow:

1. The provision of current information about television by means of a regular bulletin or newsletter to include such items as television developments in the State, developments in the video recorder field, research and reference materials, available programs, descriptions of good television utilization, and reports of meetings and conferences.

2. The development of guidelines for the purchase and use of video tape recorders.

3. The provision of assistance for developing feasibility studies and necessary long-range plans for all kinds of television systems. As might be expected, there is a great deal of concern about the need for more financial assistance.

4. The provision of in-service education for teachers on the use of television in their classrooms. Suggestions for in-service education included workshops, video-taped programs, booklets, video-tape programs in specific subject areas, and work with consultants.

5. The scheduling of work sessions for personnel involved in programing and producing television program lessons. For some time there has been an awareness of the need for more communication and exploration of ideas among those with specific competencies in curriculum, television, and learning theory and methods of utilization. A pilot project is underway to explore some way of meeting this need.

6. The coordination of the planning, financial, production, and distribution aspects of both in-class and in-service television programs.

7. The provision of a video-tape library or at least a comprehensive index of available video-tape or film transfers for in-class or in-service.

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[1] Report on "Title V Project, Instructional Television," June 19, 1967. Elinor Richardson, Education Specialist in Instructional Television, Bureau of Audio-Visual and School Library Education, State Department of Education, Sacramento, California. (1966-67)

8. The provision of an index of film footage available for television programs.

Both the increasing demands from the schools for consultation and services and expanding scope of ITV activities throughout California point to the need for additional professional personnel and the supporting clerical assistance at the State level.

Conclusion

Instructional television in California has been the focal point of this report. This modern communication tool will have an expanded role in education not only because of its contribution to conventional education but also because of its potential contribution to the newer, emerging patterns of school organization, curriculum, and instructional methods. School personnel at all levels have great responsibility for further developing ITV in ways congruent with the best that is known about the educational process. The State Department of Education shares this responsibility. To this end it seeks to provide vigorous leadership to assure the orderly step-by-step development of instructional television for the benefit of all the students in the State.

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